

Amendments to the Claims

1-108 (cancelled)

109. (new) A support system for supporting a printing screen unit in a screen printing machine, the support system including:

a support assembly comprising a support unit for supporting a printing screen unit comprising a printing screen including printing apertures through which printing medium is printed onto a workpiece, and a tensioning mechanism for tensioning the printing screen in a screen printing operation; and

a control unit for controlling operation of the support assembly, wherein the control unit is configured to operate the tensioning mechanism to tension the printing screen to a first tension in a printing phase in printing printing medium onto a workpiece and a second tension, which is lower than the first tension, in a separation phase in separating the printing screen unit and the workpiece.

110. (new) The support system of claim 109, wherein the second tension is substantially a zero tension.

111. (new) The support system of claim 109, wherein the tensioning mechanism comprises at least first and second tensioning units for tensioning the printing screen.

112. (new) The support system of claim 111, wherein the tensioning units are configured to apply a tensioning force to opposite edges of the printing screen.

113. (new) The support system of claim 111, wherein the tensioning units are configured to apply tensioning forces to adjacent corners of the printing screen.

114. (new) The support system of claim 113, wherein the tensioning units are configured to apply the tensioning forces along intersecting axes, preferably axes intersecting at a center of the printing screen.

115. (new) The support system of claim 111, wherein the tensioning mechanism comprises four tensioning units each for applying a tensioning force to a respective corner of the printing screen.

116. (new) The support system of claim 115, wherein the tensioning units are configured to apply tensioning forces along intersecting axes, preferably axes intersecting at a center of the printing screen.

117. (new) The support system of claim 108, wherein the support unit further comprises first and second screen guiding units for guiding the printing screen which are disposed to opposite edges of the printing screen.

118. (new) The support system of claim 117, wherein the screen guiding units act to constrain deflection of the printing screen.

119. (new) The support system of claim 117, wherein the screen guiding units are disposed to ends of the printing screen in the direction of screen printing.

120. (new) The support system of claim 117, wherein the screen guiding units are disposed to sides of the printing screen in the direction of screen printing.

121. (new) The support system of claim 108, wherein the support unit comprises a clamping mechanism for clamping the printing screen in the printing phase so as to fix the lateral, in-plane position of the printing screen.

122. (new) The support system of claim 121, wherein the clamping mechanism comprises first and second screen clamping units disposed to opposite edges of the printing screen.

123. (new) The support system of claim 122, wherein the screen clamping units are disposed to opposite ends of the printing screen in the direction of printing.

124. (new) The support system of claim 122, wherein the screen clamping units are disposed to opposite sides of the printing screen in the direction of printing.

125. (new) The support system of claim 122, wherein the screen clamping units comprise elongate units which extend along the respective ones of the edges of the printing screen.

126. (new) The support system of claim 122, wherein the screen clamping units comprise vacuum clamping units.

127. (new) The support system of claim 108, wherein the control unit is configured to operate the support unit to raise one edge of the printing screen relative to the other edge of the printing screen in separating the printing screen unit and the workpiece, such as to peel the printing screen from the one edge thereof away from the workpiece, and thereby separate the printing screen unit from the workpiece.

128. (new) The support system of claim 108, further comprising:
a printing screen unit, the printing screen unit comprising a printing screen including a pattern of apertures through which printing medium is printed onto a workpiece in the printing phase.

129. (new) The support system of claim 128, wherein the printing screen unit includes first and second attachment members attached to opposite edges of the printing screen.

130. (new) The support system of claim 129, wherein the attachment members each extend along a length of the respective edge of the printing screen.

131. (new) The support system of claim 129, wherein the attachment members are attached to opposite ends of the printing screen in the direction of screen printing.

132. (new) The support system of claim 129, wherein the attachment members are attached to opposite sides of the printing screen in the direction of screen printing.

133. (new) The support system of claim 128, wherein the printing screen unit includes first and second support elements disposed to opposed edges of the printing screen such as to constrain deflection of the printing screen.

134. (new) The support system of claim 133, wherein the support elements each extend along a length of a respective edge of the printing screen.

135. (new) The support system of claim 132, wherein the support elements are disposed to opposite ends of the printing screen in the direction of screen printing.

136. (new) The support system of claim 132, wherein the support elements are disposed to opposite sides of the printing screen in the direction of screen printing.

137. (new) A method of supporting a printing screen unit in a screen printing machine, the method comprising the steps of:

providing a printing screen unit comprising a printing screen including a pattern of printing apertures through which printing medium is printed onto a workpiece;

tensioning the printing screen to a first tension;

printing printing medium onto a workpiece through the pattern of apertures in the printing screen;

tensioning the printing screen to a second tension, which is lower than the first tension; and

separating the printing screen unit from the workpiece.

138. (new) The method of claim 137, wherein the second tension is substantially a zero tension.

139. (new) The method of claim 137, wherein the tensioning forces are applied to opposite edges of the printing screen.

140. (new) The method of claim 137, wherein the tensioning forces are applied to adjacent corners of the printing screen.

141. (new) The method of claim 140, wherein the tensioning forces are applied along intersecting axes, preferably axes intersecting at a center of the printing screen.

142. (new) The method of claim 137, wherein the tensioning forces are applied to the respective corners of the printing screen.

143. (new) The method of claim 142, wherein the tensioning forces are applied along intersecting axes, preferably axes intersecting at a center of the printing screen.

144. (new) The method of claim 137, further comprising the step of:
clamping the printing screen in the printing step so as to fix the lateral, in-plane position of the printing screen.

145. (new) The method of claim 144, wherein the printing screen is clamped at opposite edges thereof.

146. (new) The method of claim 145, wherein the printing screen is clamped at opposite ends thereof in the direction of screen printing.

147. (new) The method of claim 145, wherein the printing screen is clamped at opposite sides thereof in the direction of screen printing.

148. (new) The method of claim 137, wherein the separating step comprises the step of:

raising one edge of the printing screen relative to the other edge of the printing screen, such as to peel the printing screen from the one edge thereof away from the workpiece, and thereby separate the printing screen unit from the workpiece.

149. (new) A support system for supporting a printing screen unit, the support system including:

a support assembly comprising a support unit for supporting a printing screen unit, the printing screen unit comprising a printing screen including printing apertures through which printing medium is printed onto a workpiece, and a clamping mechanism for clamping the printing screen; and

a control unit for controlling operation of the support assembly, wherein the control unit is configured to operate the clamping mechanism to clamp the printing screen in a printing phase in printing printing medium onto a workpiece so as to fix the lateral, in-plane position of the printing screen, and release the printing screen in a separation phase in separating the printing screen unit and the workpiece.

150. (new) A method of supporting a printing screen unit, comprising the steps of:

providing a printing screen unit, the printing screen unit comprising a printing screen including a pattern of printing apertures through which printing medium is printed onto a workpiece;

clamping the printing screen so as to fix the lateral, in-plane position of the printing screen;

printing printing medium through the pattern of apertures in the printing screen;

releasing the printing screen; and

separating the printing screen unit from the workpiece.

151. (new) A support system for supporting a printing screen unit in a screen printing machine, the support system including:

a printing screen unit, the printing screen unit comprising a printing screen including a pattern of apertures through which printing medium is printed onto a workpiece;

a support assembly comprising a support unit for supporting the printing screen unit, and a tensioning mechanism for tensioning the printing screen in a screen printing operation; and

a control unit for controlling operation of the support assembly, wherein the control unit is configured to operate the tensioning mechanism to tension the printing screen to a first tension in a printing phase in printing printing medium onto a workpiece and a second tension, which is lower than the first tension, in a separation phase in separating the printing screen unit and the workpiece.

152. (new) A printing screen unit, comprising:

a substantially rectangular printing screen including a pattern of printing apertures through which printing medium is in use printed onto a workpiece; and

attachment means at each of the respective corners of the printing screen for attachment to a tensioning mechanism, such that the printing screen is tensioned only through the corners thereof.